Select the best answer for the multiple choice questions. There are 100 questions and 14 pages on the examination (seven two-sided pages). Notify the instructor/proctor if your examination does not have all 14 pages. Clearly indicate on the scan form the one best answer to each question among the answers provided. Be sure that you have selected your choice correctly on the scan form. Be sure that you have entered your name and identification number on the scan form and filled out the columns for the letters of your name and numbers of your identification number correctly (see front and back). Use a #2 pencil and fill all circles completely.

1. The greatest number of deaths globally caused by a parasite are due to:
   a. Schistosomiasis
   b. Malaria
   c. Filariasis
   d. Ascariasis
   e. Hookworm

2. Soil-transmitted helminths are vulnerable to sunlight:
   a. True
   b. False

3. Soil-transmitted helminths prefer which of the following types of soil?
   a. Clay
   b. Sandy
   c. Vegetative
   d. Rocky
   e. Dry

4. Which stage of helminth infection is usually infective for humans?
   a. First
   b. Second
   c. Third
   d. Fourth
   e. Adult

5. Male nematodes are usually recognizable by their curled tail:
   a. True
   b. False

6. In an individual infected with ascaris, the larvae can be found in the:
   a. Liver
   b. Lungs
   c. Intestines
   d. All of the above
   e. a. and c. above
7. Which of the following parasites can cause rectal prolapse?
   a. Hookworm
   b. Acaris
   c. **Trichuris**
   d. All of the above
   e. a. and c. above

8. **Strongyloides stercoralis** can cause:
   a. Diarrhea
   b. Pulmonary hemorrhage
   c. Pneumonia
   d. **All of the above**
   e. b. and c. above

9. Most trematodes are hemaphrodites:
   a. **True**
   b. False

10. Which stage of the trematode life cycle (not Schistosomes) is usually infectious for humans?
    a. **Metacercaria**
    b. Cercaria
    c. Sporocyst
    d. Miracidium
    e. All of the above are infectious for humans

11. The highest risk for hospital-associated infections occurs in:
    a. Cancer units
    b. Infectious disease units
    c. **Intensive care units**
    d. Metabolic disease units
    e. Cardiovascular disease units

12. The single most important practice to reduce hospital associated infections is:
    a. **Hand washing**
    b. Isolation of infectious disease patients.
    c. Reverse flow hospital rooms
    d. Face masks
    e. Gloves

13. The categories of “transmission-based precautions” include:
    a. Hand hygiene, face masks, gowns
    b. Contact, hand hygiene, gowns
    c. **Droplet, contact, airborne**
    d. Droplet, face masks, reverse flow rooms
    e. Airborne, hand borne, skin
14. The most commonly acquired hospital-associated infections are in the:
   a. Urinary tract
   b. Surgical site
   c. Bloodstream
   d. Bladder
   e. Sinuses

15. Humans are the major host for viral hemorrhagic fevers:
   a. True
   b. False

16. Ebola virus epidemics occur in:
   a. Central Africa
   b. Southeast Asia
   c. Central America
   d. All of the above
   e. a. and b. above

17. *Staphylococcus aureus* carriers can be identified by the presence of typical symptoms of infection:
   a. True
   b. False

18. MRSA is often transmitted by:
   a. Skin-to-skin contact
   b. Water
   c. Droplets
   d. Aerosol

19. Frequent washing of hands is particularly important to prevent transmission of vancomycin-resistant enterococci infection:
   a. True
   b. False

20. *Streptococcus pneumoniae* is transmitted by:
   a. Respiratory droplets
   b. Auto-inoculation from the upper respiratory tract
   c. Skin to skin contact
   d. All of the above
   e. a. and b. above

21. The pneumococcal polysaccharide vaccine is recommended for:
   a. Elderly (> 65 years)
   b. Children < 2 years of age
   c. Smokers 19-64 years
   d. All of the above
   e. a. and c. above
22. The highest proportion of chronic liver disease in the United States is caused by:
   a. HAV
   b. HBV
   c. HCV
   d. Alcohol
   e. Unknown agents

23. Globally, the leading viral cause of hepato-cellular carcinoma is:
   a. HAV
   b. HBV
   c. HCV
   d. HDV
   e. HEV

24. Type of hepatitis can be diagnosed using clinical criteria:
   a. True
   b. False

25. The average incubation period for HAV is:
   a. 28 days
   b. 45 days
   c. 120 days
   d. 3 months

26. The average incubation period for HBV is:
   a. 28 days
   b. 45 days
   c. 120 days
   d. 3 months

27. The proportion of infections with HAV associated with symptoms is highest in:
   a. Children < 2 years
   b. Children 2-6 years
   c. Adults

28. The incidence of HAV is highest in:
   a. Children < 2 years
   b. Children 2-18 years
   c. Adults

29. Children should be given an HAV vaccine when they are:
   a. In their second year of life
   b. At 2-5 years
   c. At 5-10 years
   d. In their first year of life
   e. Not before puberty

30. The majority of HBV infections in adults is associated with symptoms:
   a. True
   b. False
31. The risk of chronic HBV infection increases with age:
   a. True
   b. False

32. A reason for the dramatic decline in the incidence of acute HCV in the United States in the early 1990s was due to:
   a. Development of an effective vaccine
   b. Development of a test that could be used to screen blood for HCV
   c. Development of an effective treatment regimen
   d. The rapid decline in the incidence of new injection drug users

33. The majority of new HCV infections are asymptomatic:
   a. True
   b. False

34. Individuals who test negative for anti-HCV antibodies:
   a. Are not infected with HCV
   b. Should be confirmed negative using the recombinant immunoblot assay
   c. Should be confirmed negative using a nucleic acid test
   d. Should be treated for subclinical HCV infection

35. An individual who is positive only for anti-HBc-IgG + anti-HBs is:
   a. Acutely infected
   b. Chronically infected
   c. Immune after recovering from infection
   d. Not infected Immune because they have been effectively vaccinated

36. There are over a million species of arthropods that suck blood:
   a. True
   b. False

37. Without a blood meal, mosquitoes cannot produce eggs:
   a. True
   b. False

38. Most arboviruses have:
   a. RNA
   b. DNA
   c. Both
   d. Neither
   e. Equal number have RNA and DNA

39. Arboviruses can propagate in:
   a. The vector
   b. The usual host
   c. The accidental host
   d. All of the above
   e. a. and b. above
40. Man is an accidental host for:
   a. SLE
   b. West Nile Virus
   c. Dengue virus
   d. All of the above
   e. a. and b. above

41. Dengue hemorrhagic fever results from:
   a. Dengue 4
   b. Dengue 1
   c. A second infection with a different dengue strain
   d. Dengue 3
   e. Dengue 2

42. West Nile Virus can be transmitted by blood transfusion:
   a. True
   b. False

43. The vector for chickungunya virus is:
   a. Culex tarsalis
   b. Aedes Aegypti
   c. Anopheles
   d. Any mosquito

44. Which of the following types of malaria has a non-human host?
   a. Falciparum
   b. Vivax
   c. Ovale
   d. Malariae
   e. Knowlesi

45. The highest proportion of deaths due to malaria occur in which of the following age groups?
   a. <5 years
   b. 6-9 years
   c. 9-24 years
   d. 25-49 years
   e. The elderly

46. Which of the following is the major vector carrying malaria?
   a. Culex tarsalis
   b. Aedes Aegypti
   c. Anopheles
   d. Rattfinkus
   e. Any mosquito

47. Malaria patients can transmit to mosquitoes only when they are having symptoms:
   a. True
   b. False
48. The cycle of symptoms is shortest for which of the following subtype of malaria?
   a. Falciparum
   b. Vivax
   c. Ovale
   d. Malariae
   e. Knowlesi

49. The severity of symptoms and need for treatment increases with the level of malaria parasitemia:
   a. True
   b. False

50. Only blood smears can reveal the level of parasitemia:
   a. True
   b. False

51. In order to transmit malaria, the vector must live at least:
   a. 3 days
   b. 10 days
   c. 2-3 weeks
   d. 4 months
   e. 8 months

52. Intervention strategies for malaria include:
   a. Insecticide-treated bed nets
   b. Indoor residual spraying with DDT
   c. Removal of mosquito breeding sites
   d. All of the above
   e. a. and c. above

53. Passive immunity provides:
   a. Temporary protection
   b. Permanent protection
   c. Stimulates production of protective antibodies
   d. Is obtained from immune individuals or animals
   e. a. and d. above

54. An antigen:
   a. **Always stimulates antibody production**
   b. Always stimulates protective antibodies
   c. Is always a live substance
   d. All of the above
   e. b. and c. above

55. Monitoring of vaccine efficacy and safety is completed with the successful completion of phase 3 trials:
   a. True
   b. False
56. Which of the following vaccine types provides the strongest immune response to protect against an agent?
   a. Killed
   b. **Live, attenuated**
   c. Toxoid
   d. Anti-toxin
   e. Subunit

57. A vaccine adjuvant
   a. **Increases the magnitude of the immune response**
   b. Increases the specificity of the vaccine
   c. Assures a T cell response
   d. All of the above
   e. b. and c. above

58. Which of the following vaccine types can revert to virulence?
   a. Killed
   b. **Live attenuated**
   c. Recombinant
   d. Polysaccharide
   e. All of the above
   f. 

59. The human system with the greatest diversity of bacterial species is the:
   a. **Gut**
   b. Vagina
   c. Lung
   d. Skin
   e. Eyes

60. Within an organ system, one species of organism usually represents the largest component:
   a. **True**
   b. False

61. The average human stomach has less than 10 different bacterial species:
   a. **True**
   b. False

62. A toxoid protects against
   a. Toxins produced by some bacteria
   b. Agents which produce toxins
   c. Is specific for a particular toxin
   d. All of the above
   e. **a. and c. above**
63. What song should you sing while washing your hands to assure minimum residual bacteria?
   a. The national anthem
   b. **Happy birthday**
   c. Brahms’s lullaby
   d. Beethoven’s Ode to Joy
   e. A long day’s night

64. STIs are most common in which of the following age groups in the United States?
   a. <15 years
   b. **16-25 years**
   c. 25-39 years
   d. 40-49 years
   e. 50+

65. Cervical cancer can be diagnosed in female patients who have never had intercourse:
   a. True
   b. False

66. If a person received the first dose of the HPV vaccine but did not take the second dose after the recommended interval of 8 weeks, he or she should:
   a. Repeat the first dose
   b. **Continue to the second dose**
   c. It depends on the amount of time that has passed
   d. Avoid taking additional vaccine doses
   e. Take an alternative form of the vaccine

67. The HPV vaccine is not recommended for women over the age of 27 by the Advisory Committee on Immunization Practices (ACIP) because:
   a. The cervical tissue is less susceptible to infection
   b. There is a high likelihood of prior infection with the vaccine subtype
   c. **There is no clinical trial data available to support this recommendation**
   d. Decreased sexual activity
   e. None of the above

68. The site of initial HPV infection is the:
   a. Differentiating epithelium
   b. Basement membrane
   c. Surface epithelial cells
   d. All of the above
   e. **a. and b.**

69. The percentage of cancer cases attributable to HPV is highest for which of the following cancers?
   a. Oropharyngeal
   b. Penile
   c. Vaginal
   d. Vulvar
   e. **Anal**
70. Rates of cervical cancer are highest among:
   a. European-Americans
   b. African-Americans
   c. Canadian-Americans
   d. **Hispanic-Americans**
   e. Asian-Americans

71. The HPV vaccine for males is:
   a. Recommended for boys ages 11 and 12
   b. Recommended as early as 9 years of age
   c. Permissive for males age 22-26
   d. **All of the above**
   e. Recommended only for males who are engaging in high-risk behaviors

72. HPV vaccination of high-risk groups based on risk-factor analysis (for females) would be a more effective method than current universal age-based recommendations:
   a. True
   b. False

73. HPV subtype(s) most associated with genital warts is/are:
   a. 6
   b. 16
   c. 18
   d. All of the above
   e. a and b

74. Over 50% of the adult US population has:
   a. A subclinical HPV infection
   b. Never been infected with HPV
   c. **Evidence of past HPV infection**
   d. Genital warts
   e. None of the above

75. Genital warts have almost disappeared among young, sexually active persons in Australia because:
   a. Australians are practicing safer sex
   b. **The HPV vaccine uptake among young Australians is very high**
   c. Condoms in Australia are very cheap and very effective
   d. The virus causing genital warts is not present in Australia
   e. b. and c. above

76. The most common reportable STD in the United States is:
   a. Gonorrhea
   b. HSV-2
   c. **Chlamydia**
   d. Syphilis
   e. HPV-6
77. In the United States, which STI is responsible for the highest proportion of STI-related infertility in women?
   a. Syphilis
   b. Chlamydia
   c. Trichomonas
   d. HSV
   e. HPV

78. Drug resistance is a major problem for which of the following STIs?
   a. Chlamydia
   b. Treponema pallidum
   c. N. gonorrhoeae
   d. Shigella
   e. Mycoplasma genitalium

79. N. gonorrhoeae is most common in which of the following ethnic groups in the U.S.?
   a. European-Americans
   b. Asian-Americans
   c. African-Americans
   d. Hispanic Americans
   e. Canadian-Americans

80. Chlamydia infections are higher in women:
   a. True
   b. False

81. A skin rash on the hands and feet is typical of which of the following STIs?
   a. Chlamydia
   b. Treponema pallidum
   c. N. gonorrhoeae
   d. Hepatitis C
   e. Mycoplasma genitalium

82. Syphilis rates in the United States are highest among men:
   a. True
   b. False

83. An individual who has asymptomatic HSV-2 infection cannot transmit their infection to others:
   a. True
   b. False

84. The HPV strains that cause the majority of cervical cancer are:
   a. 16 and 18
   b. 6 and 8
   c. 6 and 11
   d. 11 and 18
   e. 8 and 18
85. According to Tobler’s First Law of Geography:
   a. Distant things are more related than near things
   b. All things are related
   c. Near things are more related than distant things
   d. b. and c.
   e. None of the above

86. The first historical example of medical mapping was:
   a. Yellow fever in New York
   b. Cholera in London
   c. Bubonic plague in Europe
   d. Cholera in Exeter
   e. Polio in the US

87. Analysis of the maps of John Snow to pinpoint the Broad Street pump as the source of the cholera outbreak utilizes which GIS feature?
   a. 2x2 tables
   b. Time trends
   c. Density plots
   d. Proximity buffers
   e. Animations

88. Using GIS, it was observed that a high density of coccidiodomycosis cases in LA County were associated with:
   a. A prison
   b. The desert landscape
   c. Contaminated water supply
   d. All of the above
   e. a. and b.

89. A useful way to graphically summarize the distribution of West Nile Virus in LA County over time is using:
   a. Network analysis
   b. Density plots
   c. Standard deviation ellipse
   d. A. and b.
   e. None of the above

90. GIS can be used in public health to examine:
   a. Patterns and trends of interactions
   b. Demographic characteristics of host communities
   c. Geographic distributions of hosts, agents, and vectors
   d. Relationships between vectors and the environment
   e. All of the above
91. The fastest growing demographics in LA County are:
   a. African-American and Latino
   b. Latino and Caucasian
   c. **Asian and Latino**
   d. African-American and Asian
   e. Caucasian and African-American

92. Influenza is an example of a(n):
   a. Agent that mutates frequently
   b. Is a zoonotic disease
   c. Resurgence of an endemic disease
   d. All of the above
   e. **a. and b. above**

93. Tuberculosis and gonorrhea are examples of:
   a. Sexually transmitted diseases
   b. Diseases caused by agents that have become drug-resistant
   c. Are currently major health problems globally
   d. All of the above
   e. **b. and c. above**

94. HIV-infected individuals who do not have progressive loss of CD4 cells:
   a. Maintain an equilibrium between cell proliferation and viral replication
   b. Are often heterozygous for the gene coding the CCR5 receptor
   c. Are infected with a benign strain of HIV
   d. All of the above
   e. **a. and b. above**

95. In the Southern African modeling study to predict the number of infections among MSM averted in the next five years, the factor that made the greatest contribution was:
   a. A 50% increase in ART coverage
   b. 50% acceptance of PREP by high-risk individuals
   c. **A 50% reduction in the number of persons practicing anal intercourse**
   d. A 5% increase in HIV testing

96. A TB patient is considered non-infectious when he/she has:
   a. A negative chest x-ray
   b. **Three sequential negative sputum smears**
   c. No physical symptoms
   d. All of the above
   e. a. and b. above

97. If it occurs, TB meningitis usually occurs:
   a. **Early in the course of infection**
   b. Late in the course of infection
   c. Equally during all phases of infection
98. Which of the following drugs should be used to treat tuberculosis?
   a. RIF
   b. PZA
   c. STP
   d. ETH
   e. A combination of drugs

99. The pathogen most commonly involved in community-acquired pneumonia is:
   a. Gram-negative bacilli
   b. Staphylococcus aureus
   c. Fungi
   d. Legionella

100. Treatment of acute diarrhea includes:
   a. Oral rehydration and penicillin
   b. Oral rehydration, zinc supplementation
   c. Intravenous saline and penicillin
   d. Oral rehydration, energy-rich food, and zinc supplementation
   e. Energy-rich food and zinc supplementation